

LPDES PERMIT NO. LA0069612, AI No. 5565

LPDES FACT SHEET and RATIONALE
FOR THE DRAFT LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM
(LPDES) PERMIT TO DISCHARGE TO WATERS OF LOUISIANA

- I. **Company/Facility Name:** Williams Olefins LLC
Geismar Ethylene Plant
P.O. Box 470
Geismar, LA 70734
- II. **Issuing Office:** Louisiana Department of Environmental Quality
(LDEQ)
Office of Environmental Services
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313
- III. **Prepared By:** Jenniffer Sheppard
Industrial Permits Section
Water Permits Division
Phone #: 225-219-3138
E-mail: jenniffer.sheppard@la.gov
- Date Prepared:** December 2, 2008
- IV. **Permit Action/Status:**
- A. **Reason For Permit Action:**

Proposed reissuance of an existing Louisiana Pollutant Discharge Elimination System (LPDES) permit for a 5-year term following regulations promulgated at LAC 33:IX.2711/40 CFR 122.46*.

* In order to ease the transition from NPDES to LPDES permits, dual regulatory references are provided where applicable. The LAC references are the legal references while the 40 CFR references are presented for informational purposes only. In most cases, LAC language is based on and is identical to the 40 CFR language. 40 CFR Parts 401, 405-415, and 417-471 have been adopted by reference at LAC 33:IX.4903 and will not have dual references. In addition, state standards (LAC 33:IX Chapter 11) will not have dual references.

LAC 33:IX Citations: Unless otherwise stated, citations to LAC 33:IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33:IX.2301, 4901, and 4903.

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- B. NPDES permit - NPDES permit effective date: NA
NPDES permit expiration date: NA
EPA has not retained enforcement authority.
- C. LPDES permit - LPDES permit effective date: January 1, 2004.
LPDES permit expiration date: December 31, 2008.
- D. Application received on July 2, 2008. Additional information received July 9, 2008 and via telephone correspondence on December 3, 2008.

V. Facility Information:

- A. Location - 5205 Highway 3115 in Geismar
- B. Applicant Activity -

According to the application, Williams Olefins LLC, Geismar Ethylene Plant, is an ethylene production facility that manufactures 1.3 billion pounds per year of ethylene. Other hydrocarbon co-products are polypropylene, 1,3-butadiene, and debutanized aromatic concentrate (DAC).

Light hydrocarbon feedstock (primarily ethane) is fed to a bank of cracking furnaces operated in parallel. The thermal reaction products are then cooled, refined, and fractionated into individual products in a continuous process train.

- C. Technology Basis - (40 CFR Chapter 1, Subchapter N/Parts 401, 405-415, and 417-471 have been adopted by reference at LAC 33:IX.4903).

Guideline

Organic Chemicals, Plastics,
and Synthetic Fibers

Reference

40 CFR 414, Subparts F and I

Process Flow - 0.44928 MGD

Other sources of technology based limits:

LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6).

Multi-Sector General Permit for Industrial Stormwater Discharges, LAR050000.

Best Professional Judgment

- D. Fee Rate -
 - 1. Fee Rating Facility Type: major
 - 2. Complexity Type: VI
 - 3. Wastewater Type: II
 - 4. SIC code: 2869

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E. Continuous Facility Effluent Flow - 0.70848 MGD (Max 30-Day).

VI. **Receiving Waters:** Mississippi River (Outfall 001) and Bayou Braud via an unnamed drainage ditch (Outfalls 002, 003, 004, and 005)

Bayou Braud via an unnamed drainage ditch - Outfalls 002, 003, 004, and 005

1. River Basin: Lake Pontchartrain, Segment No. 040201
2. Designated Uses:

The designated uses are primary contact recreation, secondary contact recreation, and fish and wildlife propagation.

Mississippi River - Outfall 001

1. TSS (15%), mg/L: 32
2. Average Hardness, mg/L CaCO₃: 153.4
3. Critical Flow, cfs: 141,955
4. Mixing Zone Fraction: 0.3333
5. Harmonic Mean Flow, cfs: 366,748
6. River Basin: Mississippi River, Segment No. 070301
7. Designated Uses:

The designated uses are primary contact recreation, secondary contact recreation, fish and wildlife propagation, and drinking water supply.

Information based on the following: LAC 33:IX Chapter 11;/Recommendation(s) from the Engineering Section. Hardness and 15% TSS data come from monitoring station 319 on the Mississippi River east of Plaquemine listed in Hardness and TSS Data for All LDEQ Ambient Stations for the Period of Record as of March 1998, LeBlanc. This information was provided in a Memorandum from Todd Franklin to Jenniffer Sheppard dated November 14, 2008 (See Appendix C).

VII. **Outfall Information:**

Outfall 001

- A. Type of wastewater - the continuous discharge of treated process wastewater and process area stormwater; utility wastewater including demin regeneration wastewater and filter backwash, heater and boiler blowdown, facility cooling tower blowdown, and Air Products cooling tower blowdown; and miscellaneous wastewaters including but not limited to hydrostatic test waters and fire systems test waters.
- B. Location - at the point of discharge after mixing of the ethylene plant discharge streams from the pH control sumps, the blowdown sump, and the biological treatment pond, at Latitude 30°12'52", Longitude 91°3'10".

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- C. Treatment - treatment of process wastewaters consists of:
- distillation
 - flotation
 - settling
 - neutralization
 - activated sludge
 - stabilization ponds
 - aerobic digestion
 - filtration

Treatment of demin regeneration and filter backwash consists of:

- neutralization

Treatment of heater and boiler blowdown consists of:

- flotation
- settling
- neutralization
- activated sludge
- stabilization ponds
- aerobic digestion
- filtration

- D. Flow - Continuous Flow 0.70848 MGD.

Process Wastewater*	0.44928 MGD
Utility Wastewater*	0.25920 MGD

* Specific component waste streams are defined at Appendix A-1.

- E. Receiving waters - Mississippi River.
- F. Basin and segment - Mississippi River Basin, Segment 070301.

Outfall 002

- A. Type of wastewater - the intermittent discharge of low contamination potential stormwater runoff from non-process areas surrounding the plant office and laboratories, and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate.
- B. Location - at the point of discharge near the intersection of 4th Avenue and the West property line of the facility prior to mixing with other waters, at Latitude 30°13'52", Longitude 91°03'15".
- C. Treatment - None.
- D. Flow - Intermittent.

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- E. Receiving waters - Bayou Braud via an unnamed drainage ditch.
- F. Basin and segment - Lake Pontchartrain Basin, Segment 040201.

Outfall 003

- A. Type of wastewater - the intermittent discharge of low contamination potential stormwater runoff from non-process areas of the central portion of the site, and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate.
- B. Location - at the point of discharge near the intersection of 7th Avenue and the West property line of the facility prior to mixing with other waters, at Latitude 30°13'57", Longitude 91°03'13".
- C. Treatment - None.
- D. Flow - Intermittent.
- E. Receiving waters - Bayou Braud via an unnamed drainage ditch.
- F. Basin and segment - Lake Pontchartrain Basin, Segment 040201.

Outfall 004

- A. Type of wastewater - the intermittent discharge of low contamination potential stormwater runoff from non-process areas adjacent to the treatment and hydrogen recovery units, and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate.
- B. Location - at the point of discharge from the North end of the facility prior to mixing with other waters, at Latitude 30°14'18", Longitude 91°02'58".
- C. Treatment - None.
- D. Flow - Intermittent.
- E. Receiving waters - Bayou Braud via an unnamed drainage ditch.
- F. Basin and segment -- Lake Pontchartrain Basin, Segment 040201.

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Outfall 005

- A. Type of wastewater - the intermittent discharge of low contamination potential stormwater runoff from non-process areas of the central and southeastern portion of the site, and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate.
- B. Location - at the point of discharge near the intersection of 7th Avenue and the East property line of the facility prior to mixing with other waters, at Latitude 30°14'10", Longitude 91°02'55".
- C. Treatment - None.
- D. Flow - Intermittent.
- E. Receiving waters - Bayou Braud via an unnamed drainage ditch.
- F. Basin and segment - Lake Pontchartrain Basin, Segment 040201.

VIII. Proposed Permit Limits:

The specific effluent limitations and/or conditions will be found in the draft permit. Development and calculation of permit limits are detailed in the Permit Limit Rationale section below.

Summary of Proposed Changes From the Current LPDES Permit:

- A. Outfall 001 - Limitations were calculated in accordance with the OCPSF Guideline concentrations at 40 CFR Part 414, with 100% of the production covered under Subpart F. This renewal reflects an increase in process flow from the current LPDES permit, effective on January 1, 2004 from 0.40752 MGD to 0.44928 MGD with an overall outfall flow increase from 0.66672 MGD to 0.70848 MGD.

IX. Permit Limit Rationale:

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707/40 CFR Part 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

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A. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at LAC 33:IX.2707.L.2.b/40 CFR Part 122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to LAC 33:IX.2707.A/40 CFR Part 122.44(a) or on State water quality standards and requirements pursuant to LAC 33:IX.2707.D/40 CFR Part 122.44(d), whichever are more stringent.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS, CONDITIONS, AND MONITORING REQUIREMENTS

Regulations promulgated at LAC 33:IX.2707.A/40 CFR Part 122.44(a) require technology-based effluent limitations to be placed in LPDES permits based on effluent limitations guidelines where applicable, on BPJ (best professional judgment) in the absence of guidelines, or on a combination of the two. The following is a rationale for types of wastewaters. See outfall information descriptions for associated outfall(s) in Section VII. Regulations also require permits to establish monitoring requirements to yield data representative of the monitored activity [LAC 33:IX.2715/40 CFR 122.48(b)] and to assure compliance with permit limitations [LAC 33:IX.2707.I./40 CFR 122.44(I)].

1. Outfall 001 - Process Wastewaters

*Outfall 001 - the continuous discharge of treated process wastewater and process area stormwater; utility wastewater including demin regeneration wastewater and filter backwash, heater and boiler blowdown, facility cooling tower blowdown, and Air Products cooling tower blowdown; and miscellaneous wastewaters including but not limited to hydrostatic test waters and fire systems test waters.

Williams Olefins LLC, Geismar Ethylene Plant is subject to Best Practicable Control Technology Currently Available (BPT) and Best Available Technology Economically Achievable (BAT) effluent limitation guidelines listed below:

<u>Manufacturing Operation</u>	<u>Guideline</u>
Organic chemical manufacturing	40 CFR 414, Subpart(s) F and I.

Subpart F = Commodity Organic Chemicals makes up 100% of the production at Williams Olefins LLC, Geismar Ethylene Plant.

Subpart I = Direct Discharge Point Sources That Use End-Of-Pipe Biological Treatment.

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PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	Continuous
pH Range Excursions No. of Events >60 minutes	---	--	---	0 (*1)	Continuous
pH Range Excursions Monthly Total Accumulated Time in Minutes	---	--	---	446 (*1)	Continuous
pH (Standard Units)	---	---	Report (*1) (Min)	Report (*1) (Max)	Continuous
BOD ₅	123	321	---	---	3/week
TSS	216	623	---	---	3/week
Oil & Grease	59	89	---	---	3/week
Acrylonitrile	0.36	0.91	---	---	1/year
Benzene	0.14	0.51	---	---	1/month
Carbon Tetrachloride	0.07	0.14	---	---	1/year
Chlorobenzene	0.06	0.10	---	---	1/year
Chloroethane	0.39	1.00	---	---	1/year
Chloroform	0.08	0.17	---	---	1/year
1,1-Dichloroethane	0.08	0.22	---	---	1/year
1,2-Dichloroethane	0.25	0.79	---	---	1/year
1,1-Dichloroethylene	0.06	0.09	---	---	1/year
1,2-trans- Dichloroethylene	0.08	0.20	---	---	1/year
1,2-Dichloropropane	0.57	0.86	---	---	1/year
1,3-Dichloropropylene	0.11	0.16	---	---	1/year

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PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, µG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Ethylbenzene	0.12	0.40	---	---	1/month
Methyl Chloride	0.32	0.71	---	---	1/year
Methylene Chloride	0.15	0.33	---	---	1/year
Tetrachloroethylene	0.08	0.21	---	---	1/year
Toluene	0.10	0.30	---	---	1/month
1,1,1-Trichloroethane	0.08	0.20	---	---	1/year
1,1,2-Trichloroethane	0.08	0.20	---	---	1/year
Trichloroethylene	0.08	0.20	---	---	1/year
Vinyl Chloride	0.39	1.00	---	---	1/year
2-Chlorophenol	0.12	0.37	---	---	1/year
2,4-Dichlorophenol	0.15	0.42	---	---	1/year
2,4-Dimethylphenol	0.07	0.13	---	---	1/year
4,6-Dinitro-o-Cresol	0.29	1.04	---	---	1/year
2,4-Dinitrophenol	0.27	0.46	---	---	1/year
2-Nitrophenol	0.15	0.26	---	---	1/year
4-Nitrophenol	0.27	0.46	---	---	1/year
Phenol	0.06	0.10	---	---	1/year
Acenaphthene	0.08	0.22	---	---	1/year
Acenaphthylene	0.08	0.22	---	---	1/year
Anthracene	0.08	0.22	---	---	1/year
Benzo (a) anthracene	0.08	0.22	---	---	1/year
Benzo (a) pyrene	0.09	0.23	---	---	1/year
3,4-Benzofluoranthene	0.09	0.23	---	---	1/year
Benzo(k) fluoranthene	0.08	0.22	---	---	1/year

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PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, μG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Bis(2-ethylhexyl)phthalate	0.39	1.05	---	---	1/year
Chrysene	0.08	0.22	---	---	1/year
1,2-Dichlorobenzene	0.29	0.61	---	---	1/year
1,3-Dichlorobenzene	0.12	0.16	---	---	1/year
1,4-Dichlorobenzene	0.06	0.10	---	---	1/year
Diethyl phthalate	0.30	0.76	---	---	1/year
Dimethyl phthalate	0.07	0.18	---	---	1/year
Di-n-butyl phthalate	0.10	0.21	---	---	1/year
2,4-Dinitrotoluene	0.42	1.07	---	---	1/year
2,6-Dinitrotoluene	0.96	2.40	---	---	1/year
Fluoranthene	0.09	0.25	---	---	1/year
Fluorene	0.08	0.22	---	---	1/year
Hexachlorobenzene	0.06	0.10	---	---	1/year
Hexachlorobutadiene	0.07	0.18	---	---	1/year
Hexachloroethane	0.08	0.20	---	---	1/year
Naphthalene	0.08	0.22	---	---	1/year
Nitrobenzene	0.10	0.25	---	---	1/year
Phenanthrene	0.08	0.22	---	---	1/year
Pyrene	0.09	0.25	---	---	1/year
1,2,4-Trichlorobenzene	0.25	0.52	---	---	1/year

(*1) The pH shall be within a range of 6.0 - 9.0 Standard Units at all times subject to the continuous monitoring pH range excursion provision in Part II, Paragraph H of the draft permit.

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Calculations and basis of permit limitations are found at Appendix A and associated appendices. See below for site-specific considerations.

Site-Specific Consideration(s) for Outfall 001

Flow - established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on January 1, 2004. The continuous monitoring frequency has also been retained.

PH - this requirement has been established in accordance with LAC 33:IX.1113.C.1. and retained from the current LPDES permit effective on January 1, 2004. The continuous monitoring frequency has also been retained.

BOD₅ and TSS - monthly average and daily maximum limitations established in accordance with OCPSF Guidelines under 40 CFR 414, Subpart F for Commodity Organic Chemicals with 0.44928 MGD of process wastewater. Additionally, allocations were retained from the current LPDES permit, effective January 1, 2004 for utility wastewaters based on best professional judgment. Utility wastewater allocations have been applied to a flow of 0.2592 MGD and were based on a 5 mg/L monthly average concentration and 10 mg/L daily maximum concentration for BOD₅ and a 20 mg/L monthly average concentration and 30 mg/L daily maximum concentration for TSS. The monitoring frequencies have been retained at 3/week for both parameters.

Oil & Grease - monthly average and daily maximum concentrations of 10 mg/L and 15 mg/L were retained from the current LPDES permit, effective January 1, 2004 for the entire outfall flow based on best professional judgment. The monitoring frequency has been retained at 3/week.

Benzene, Ethylbenzene, and Toluene - limitations established in accordance with OCPSF Guidelines under 40 CFR 414, Subpart I for direct discharge point sources that use end-of-pipe biological treatment. A monitoring frequency of 1/month has been retained from the current LPDES permit effective on January 1, 2004.

Acrylonitrile, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloroform, 1,1-Dichloroethane, 1,2-Dichloroethane, 1,1-Dichloroethylene, 1,2-trans-Dichloroethylene, 1,2-Dichloropropane, 1,3-Dichloropropylene, Methyl Chloride, Methylene Chloride, Tetrachloroethylene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethylene, Vinyl Chloride, 2-Chlorophenol, 2,4-

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Dichlorophenol, 2,4-Dimethylphenol, 4,6-Dinitro-o-cresol, 2,4-Dinitrophenol, 2-Nitrophenol, 4-Nitrophenol, Phenol, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, 3,4-Benzofluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Chrysene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Diethyl phthalate, Dimethyl phthalate, Di-n-butyl phthalate, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Hexachloroethane, Naphthalene, Nitrobenzene, Phenanthrene, Pyrene, 1,2,4-Trichlorobenzene - limitations established in accordance with OCPSP Guidelines under 40 CFR 414, Subpart I for direct discharge point sources that use end-of-pipe biological treatment. A monitoring frequency of 1/year has been retained from the current LPDES permit effective on January 1, 2004. This frequency is appropriate since these pollutants are not expected to be on site.

2. Outfall(s) 002, 003, 004, and 005 - Stormwater

*Outfall 002 - the intermittent discharge of low contamination potential stormwater runoff from non-process areas surrounding the plant office and laboratories, and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate.

*Outfall 003 - the intermittent discharge of low contamination potential stormwater runoff from non-process areas of the central portion of the site, and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate.

*Outfall 004 - the intermittent discharge of low contamination potential stormwater runoff from non-process areas adjacent to the treatment and hydrogen recovery units, and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate.

*Outfall 005 - the intermittent discharge of low contamination potential stormwater runoff from non-process areas of the central and southeastern portion of the site, and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate.

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Low potential contaminated stormwater discharged through discrete outfall(s) not associated with process wastewater shall receive the following BPJ limitations in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6).

PARAMETER(S)	MASS, LBS/DAY unless otherwise stated		CONCENTRATION, MG/L unless otherwise stated		MEASUREMENT FREQUENCY
	MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	
Flow, MGD	Report	Report	---	---	1/quarter
TOC	---	---	---	50	1/quarter
Oil & Grease	---	---	---	15	1/quarter
pH Standard Units	---	---	6.0 (min)	9.0 (max)	1/quarter

Site-Specific Consideration(s) for Outfalls 002, 003, 004 and 005

Flow - established in accordance with LAC 33:IX.2707.I.1.b. and retained from the current LPDES permit effective on January 1, 2004. The 1/quarter monitoring frequency has also been retained.

TOC and Oil & Grease - daily maximum limitations of 50 mg/L for TOC and 15 mg/L for Oil & Grease have been established based on best professional judgment. These limitations are consistent with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6) and the requirements of the Multi-Sector General Permit for Industrial Stormwater Discharges, LAR050000. The 1/quarter monitoring frequencies have been retained from the current LPDES permit, effective on January 1, 2004.

PH - this requirement has been established in accordance with LAC 33:IX.1113.C.1. and retained from the current LPDES permit effective on January 1, 2004. The 1/quarter monitoring frequency has also been retained.

Other Requirements Applicable to All Stormwater

In accordance with LAC 33:IX.2707.I.3 and 4 [40 CFR 122.44(I)(3) and (4)], a Part II condition is proposed for applicability to all storm water discharges from the facility, either through permitted outfalls or through outfalls which

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are not listed in the permit or as sheet flow. For first time permit issuance, the Part II condition requires a Storm Water Pollution Prevention Plan (SWP3) within six (6) months of the effective date of the final permit. For renewal permit issuance, the Part II condition requires that the Storm Water Pollution Prevention Plan (SWP3) be reviewed and updated, if necessary, within six (6) months of the effective date of the final permit. If the permittee maintains other plans that contain duplicative information, those plans could be incorporated by reference to the SWP3. Examples of these type plans include, but are not limited to: Spill Prevention Control and Countermeasures Plan (SPCC), Best Management Plan (BMP), Response Plans, etc. The conditions will be found in the draft permit. Including Best Management Practice (BMP) controls in the form of a SWP3 is consistent with other LPDES and EPA permits regulating similar discharges of stormwater associated with industrial activity, as defined in LAC 33:IX.2522.B.14 [40 CFR 122.26(b)(14)].

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations and/or specific analytical results from the permittee's application were screened against state water quality numerical standard based limits by following guidance procedures established in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008. Calculations, results, and documentation are given in Appendix B.

In accordance with LAC 33:IX.2707.D.1/40 CFR § 122.44(d)(1), the existing (or potential) discharge (s) was evaluated in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008, to determine whether pollutants would be discharged "at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." Calculations, results, and documentation are given in Appendix B.

The following pollutants received water quality based effluent limits:

POLLUTANT(S)
None

Minimum quantification levels (MQL's) for state water quality numerical standards-based effluent limitations are set at the values listed in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, April 16, 2008.

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They are also listed in Part II of the permit.

TMDL Waterbodies

Outfall 001

The discharges from Outfall 001 include treated process wastewater and process area stormwater; utility wastewater including demin regeneration wastewater and filter backwash, heater and boiler blowdown, facility cooling tower blowdown, and Air Products cooling tower blowdown; and miscellaneous wastewaters including but not limited to hydrostatic test waters and fire systems test waters are to the Mississippi River, Segment No. 070301. The Mississippi River is not listed on the 2006 Final Integrated Report as being impaired. Therefore, no additional requirements have been established in this permit.

Outfalls 002, 003, 004, and 005

The discharges from Outfalls 002, 003, 004, and 005 include low contamination potential stormwater runoff from non-process areas and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate and are to Bayou Braud via an unnamed drainage ditch, Segment No. 040201 (Bayou Manchac - Headwaters to the Amite River). Subsegment 040201 is listed on the 2006 Final Integrated Report as being impaired with ammonia, phosphorus, nitrogen, organic enrichment/low DO, pathogen indicators, chlorides, sulfates, and TDS. A TMDL is scheduled to be completed by March 2011-2012.

Ammonia, Phosphorus, Nitrogen, and Organic Enrichment/Low DO

The types of wastewaters permitted to discharge from Outfalls 002, 003, 004, and 005 do not have a history of causing or contributing to ambient nutrient and DO impairments. Nutrient and DO impairments are typically attributed to improperly operated on-site domestic wastewater treatment systems, decentralized wastewater treatment, fill/drainage, crop production and unsewered residential districts. Additionally, no LDEQ finalized TMDL recognizes non-process waste streams, such as those consisting mainly of stormwater, as point source contributors to DO and nutrient impairments where TMDLs have been established for these impairments.

However, in an effort to address the impairments during the development of the draft permit, TOC monitoring has been identified as a means of measuring organic materials in a discharge. Given the types of discharges and the suspected cause of the impairments, this Office has determined that it is appropriate to retain the 50 mg/L daily maximum limitation for TOC on these outfalls as an indicator

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parameter to monitor the organic constituents in the waste stream. The TOC limitation was originally established using stormwater guidance, in a letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6) and has been used in water discharge permits for similar types of discharges for 20 years and considered protective of waters of the state.

Pathogen Indicators

Pathogen Indicator Impairments are typically associated with discharges of sanitary wastewater. Since these outfalls contain low contamination potential stormwater from non-process areas and the following miscellaneous discharges: eye wash/safety shower water, fire system test waters, steam trap discharges, and air conditioning condensate only, LDEQ has determined that there is no reasonable potential for these discharges to cause further pathogen indicator impairments in the receiving waterbody. Therefore, no additional requirements have been added to the permit.

Chlorides, Sulfates, and TDS

Chlorides, Sulfates, and TDS impairments were listed in the 2006 Final Integrated Report due to site clearance (land development or redevelopment). Site clearance is typically associated with construction activities. Outfalls 002, 003, 004, and 005 are existing outfalls with no areas under construction and/or significant requested changes from the current LPDES permit, effective on January 1, 2004. Therefore, these discharges are not reasonably expected to cause or contribute to further Chlorides, Sulfates, and/or TDS impairments. No additional requirements have been added to the permit.

A reopener clause will be established in the permit to include more stringent limits based on final loading allocations in the completed and approved TMDL.

Site-Specific Consideration(s)

None

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D. Biomonitoring Requirements

It has been determined that there may be pollutants present in the effluent which may have the potential to cause toxic conditions in the receiving stream. The State of Louisiana has established a narrative criteria which states, "toxic substances shall not be present in quantities that alone or in combination will be toxic to plant or animal life." The Office of Environmental Services requires the use of the most recent EPA biomonitoring protocols.

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. The biomonitoring procedures stipulated as a condition of this permit for Outfall(s) 001 are as follows:

TOXICITY TESTS

FREQUENCY

Acute static renewal 48-hour
 definitive toxicity test
 using Daphnia pulex

1/year

Acute static renewal 48-hour
 definitive toxicity test
 using fathead minnow (Pimephales
 promelas)

1/year

Toxicity tests shall be performed in accordance with protocols described in the latest revision of the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms." The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge in accordance with regulations promulgated at LAC 33:IX.2715/40 CFR Part 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and alkalinity shall be documented in a full report according to the test method publication mentioned in the previous paragraph. The permittee shall submit a copy of the first full report to the Office of Environmental Compliance. The full report and subsequent reports are to be retained for three (3) years following the provisions of Part III.C.3 of this permit. The permit

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requires the submission of certain toxicity testing information as an attachment to the Discharge Monitoring Report.

This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of LAC 33:IX.3105/40 CFR 124.5. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

Dilution Series

The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 0.0098%, 0.013%, 0.017%, 0.023%, and 0.031%. The low-flow effluent concentration (critical dilution) is defined as 0.023% effluent.

X. Compliance History/DMR Review:

A Compliance History and DMR Review has been completed for Williams Olefins LLC, Geismar Ethylene Plant covering the time frame of November 1, 2005 through November 1, 2008.

A. DMR Review - the following excursion were reported during the above mentioned time frame:

DATE	PARAMETER	OUTFALL	REPORTED VALUE		PERMIT LIMITS	
			MONTHLY AVERAGE	DAILY MAXIMUM	MONTHLY AVERAGE	DAILY MAXIMUM
12/31/05	Acenaphthylene	001	0.14 lbs/day	---	0.07 lbs/day	---
09/30/06	TSS	001	---	586 lbs/day	---	571 lbs/day
01/31/07	Oil & Grease	001	---	143 lbs/day	---	83 lbs/day
02/28/07	Benzene	001	---	0.67 lbs/day	---	0.46 lbs/day

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B. Inspections

1. An LPDES Compliance Inspection was performed on December 21, 2006. The inspector noted that all areas inspected were satisfactory.
2. An LPDES Compliance Inspection was performed on December 14, 2007. The following items were included in the inspection report:
 - a. The January 2007 Oil & Grease excursion and February 2008 Benzene excursion were noted.
 - b. No other areas of concern were listed in the inspection report.

C. Enforcement History - There are no open actions for LPDES wastewater. The following actions were issued to this facility for air violations.

1. A Notice of Potential Penalty (Tracking Number AE-PP-07-0070) was issued September 25, 2007.
2. An Amended Notice of Potential Penalty (Tracking Number AE-PP-07-0070A) was issued December 14, 2007.

XI. "IT" Questions

This applicant is not required to submit IT Questions in accordance with La. R.S. 30:2018(A). Williams Olefins LLC, Geismar Ethylene Plant is regulated under the OCPSPF Guidelines at 40 CFR 414, Subparts F and I. Limitations under these guidelines are calculated based on flow. The permit application proposed an increase in flow from 0.66672 MGD to 0.70848 MGD, which represents a 5.9% increase at the process outfall (001) from the current LPDES permit effective on January 1, 2004. Additionally, there were no significant changes to any of Williams Olefins LLC's other outfalls (002, 003, 004, and 005). LDEQ has determined that a 5.9% increase in flow is not a substantial modification to the permit. Therefore, since Williams Olefins LLC is not a major new facility and is not applying for a substantial modification, IT Questions were not an application requirement.

XII. Endangered Species:

The receiving waterbody, Subsegment 070301 of the Mississippi River Basin for Outfall 001, has been identified by the U.S. Fish and Wildlife Service (FWS) as habitat for the Pallid Sturgeon which is listed as an endangered species. This draft permit has been submitted to the FWS for review in accordance with a letter dated 11/17/08 from Rieck (FWS) to Nolan (LDEQ).

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As set forth in the Memorandum of Understanding between the LDEQ and the FWS, and after consultation with FWS, LDEQ has determined that the issuance of the LPDES permit is not likely to have an adverse effect upon the Pallid Sturgeon. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat. Therefore, the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat.

The receiving waterbody for Outfalls 002, 003, 004, and 005 discharging to Subsegment 040201 of the Lake Pontchartrain Basin is not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish and Wildlife Service (FWS).

XIII. Historic Sites:

The discharge is from an existing facility location, which does not include an expansion on undisturbed soils. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits" no consultation with the Louisiana State Historic Preservation Officer is required.

XIV. Tentative Determination:

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to reissue a permit for the discharge described in the application.

XV. Variances:

No requests for variances have been received by this Office.

XVI. Public Notices:

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the fact sheet. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing List